

CLAIMS

1. A method of authenticating the identity of an individual employing a preselected sequence of linear partial fingerprint signatures comprising the steps of:

5 (a) obtaining a reference set of linear partial fingerprint signatures and storing an electronic representation of the reference set in a comparison means, said reference set derived from two or more scans taken across predetermined paths on an individual's fingerprint;

10 (b) generating a candidate set of linear partial fingerprint signatures and applying an electronic representation of the candidate set to a comparison means, said candidate set derived from at least two scans taken across corresponding predetermined paths on that individual's fingerprint, the particular two of said at least two scans and the sequence of their application to said comparison means being selected so as to serve as a personal code; and

(c) providing a comparison means for comparing said reference and candidate sets and for providing an affirmative response for a successful comparison and a negative response for an unsuccessful comparison.

2. The method of Claim 1 wherein said reference set is derived from four bidirectional scans.

3. The method of Claim 2 wherein said four bidirectional scans are taken along straight lines intersecting at their midpoints, each line rotationally displaced 45 degrees from any closest other line.

4. The method of Claim 3 wherein said reference set includes eight linear partial fingerprint signatures and said candidate set includes two out of a possible sixty-four linear partial fingerprint signatures.

5. The method of Claim 2 wherein said comparing means is included in a microprocessor embedded within an identification/credit card.

6. The method of Claim 2 wherein said affirmative response is one or more responses selected from a group including an alphanumeric visual indicator, a color-coded visual indicator and a signal for controlling an external control unit.

7. A system for authenticating the identity of an individual employing a preselected sequence of linear partial fingerprint signatures comprising:

(a) means for obtaining a reference set of linear partial fingerprint signatures and for storing an electronic representation thereof in a comparison means, said reference set derived from two or more scans taken across predetermined paths on an individual's fingerprint;

5 (b) means for generating a candidate set of linear partial fingerprint signatures and for applying an electronic representation of the candidate set to a comparison means, said candidate set derived from at least two scans taken across corresponding predetermined paths on that individual's fingerprint, the particular two of said at least two scans and the sequence of their application to said comparison means being selected so as to serve as a personal code; and

10 (c) a comparison means for comparing said reference and candidate sets and for providing an affirmative response for a successful comparison and a negative response for an unsuccessful comparison.

8. The system of Claim 7 wherein said means for obtaining includes an optical scanner for deriving said four bidirectional scans while said individual's fingerprint is held stationary.

9. The system of Claim 7 wherein said comparison means is included in a microprocessor embedded within an identification/credit card.

10. The system of Claim 7 wherein said generating means comprises a single element optical sensing device and said at least two scans are taken while said individual's fingerprint is moved across said sensing device.

11. A method of authenticating the identity of an individual employing a preselected sequence of linear partial fingerprint signatures comprising the steps of:

(a) obtaining a reference set of linear partial fingerprint signatures and storing an electronic representation of the reference set in a comparison means, said reference set derived from four bidirectional scans taken across predetermined paths on an individual's fingerprint;

5 (b) generating a candidate set of linear partial fingerprint signatures and applying an

10 electronic representation of the candidate set to a comparison means, said candidate set derived from at least two scans taken across corresponding predetermined paths on that individual's fingerprint, the particular two of said at least two scans and the sequence of their application to said comparison means being selected so as to serve as a personal code;

(c) providing a comparison means for comparing said reference and candidate sets and for providing an affirmative response for a successful comparison and a negative response for an unsuccessful comparison, said comparison means being included in a microprocessor embedded within an identification/credit card; wherein

(d) said affirmative response is one or more responses produced by a multipurpose indicator providing outputs selected from a group including an alphanumeric visual indication, a color-coded visual indication and a signal for controlling an external control unit.

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